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UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte ROGER BRUCE HARDING, SUSAN L. H. CRENSHAW,
PAUL EUGENE GREGORY, and DENISE HARTNETT BROUGHTON

Appeal 2007-4516
Application 09/557,804
Technology Center 1600

Decided: February 27, 2008

Before, TONI R. SCHEINER, DEMETRA J. MILLS, and ERIC GRIMES,
Administrative Patent Judges.

MILLS, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134. The Examiner has rejected the claims for anticipation. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

Claim 39 is representative.

39. A carboxymethyl cellulose ether prepared by a method comprising the steps of:

(a) obtaining mercerized and recovered cellulose pulp; and
(b) converting the mercerized and recovered cellulose pulp into carboxymethyl cellulose, wherein the mercerized cellulose pulp in step (a) was mercerized with a cellulose II mercerizing agent, and the mercerized and recovered cellulose pulp has a TAPPI 230 om-89 viscosity greater than 12 cP, when the cellulose pulp is southern softwood kraft.

Cited Reference

Mansikkamäki EP 0 879 827 A2 Nov. 25, 1998

Grounds of Rejection

Claims 39 and 60-63 stand rejected under 35 U.S.C. § 102(b) as anticipated by Mansikkamäki.

DISCUSSION

Background

The invention relates to cellulose ethers and a method of preparing them from mercerized and recovered cellulose pulp. (Spec. 1.)
“Mercerization converts cellulose from its native form, cellulose I, to a more thermodynamically stable form, such as cellulose II.” (Spec. 7.) Cellulose pulp may be mercerized by reacting the pulp with a mercerizing agent, such as a mercerizing agent which converts cellulose I to cellulose II (i.e., a cellulose II mercerizing agent). *Id.* The mercerized pulp is typically washed and/or neutralized. (Spec. 6.)

According to Appellants, the solution rheology of cellulose ethers prepared from cellulose pulp is altered by mercerizing and recovering cellulose pulp before preparing the cellulose ethers. (Spec. 3.) In particular, “the solution viscosity of carboxymethyl cellulose (CMC) produced from mercerized and recovered cellulose pulp is significantly greater than that produced from non-mercerized cellulose pulp.” (Spec. 3-4.)

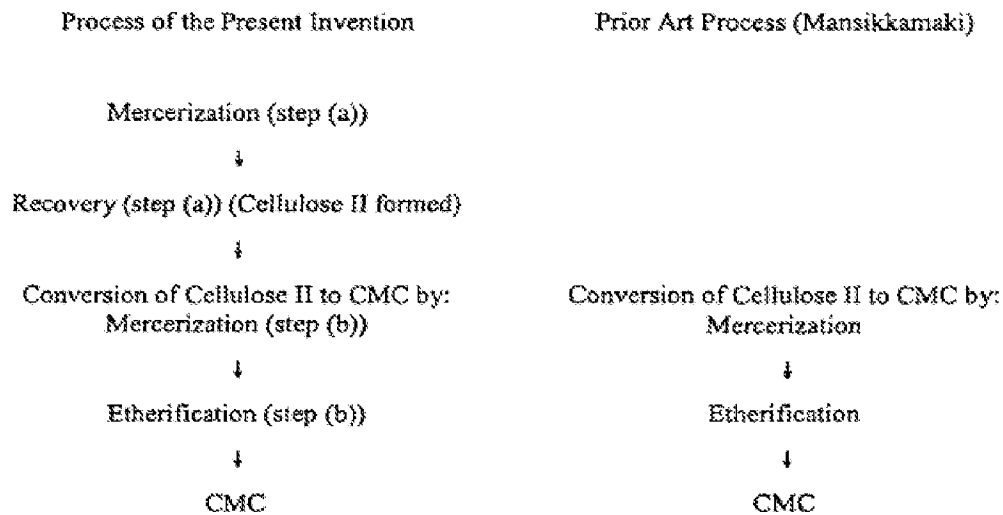
Claims 39 and 60-63 stand rejected under 35 U.S.C. § 102 as anticipated by Mansikkamäki.

The Examiner contends that

The Mansikkamaki et al patent discloses carboxymethyl cellulose derived from sulphite softwood pulp (see page 2, line 14), which is analogous to the softwood kraft cellulose pulp ... Mansikkamaki et al also shows that mercerization of cellulose pulp during preparation of carboxymethyl cellulose is known in the art (see page 2, lines 18-21). The Mansikkamaki et al patent sets forth, in Table 2 on page 3 of the document, viscosity values for the carboxymethyl cellulose thereof that anticipates the viscosity values disclosed in the instant claims. The carboxymethyl cellulose ether of the instant claims differs from the carboxymethyl cellulose of the Mansikkamaki et al patent by setting forth the instant claims in product- by-process forms. However, process limitations cannot impart patentability to a product that is not patentably distinguished over the prior art. ... The instantly claimed carboxymethyl cellulose ether product, per se, does not set forth characteristics that make the product different and patentable over the carboxymethyl cellulose ether product of the Mansikkamaki et al patent.

(Answer 3-4.)

Appellants contend that, “[t]he process in Mansikkamäki does not, however, use pre-mercerized cellulose pulp. The cellulose pulp in Mansikkamäki is only mercerized once - not twice as in the process of the present invention.” (Reply Brief 5.) Appellants provide the following diagram comparing the process of the present invention to that of Mansikkamäki:



(Reply Br. 5.) (The “Cellulose II” in the prior art process should apparently be “Cellulose I”; see below.)

Appellants argue that “the cellulose pulp which is mercerized, etherified, and neutralized in Mansikkamäki is native cellulose (**Cellulose I**), whereas that in the presently claimed process is cellulose II.” (Reply Br. 5.) Thus, Appellants contend that Mansikkamäki does not disclose or suggest recovering the cellulose pulp after the mercerization step and prior to converting the mercerized pulp to carboxymethyl cellulose (CMC). (Br. 7.) Appellants argue that

the process recited in the pending claims must be considered to the extent it provides novel and non-obvious features to the product. These features include the increased

viscosity of the CMC product, compared to similar CMC's of the prior art.

(Reply Br. 3.)

“Where a product-by-process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.” *In re Marosi*, 710 F.2d 799, 803 (Fed. Cir. 1983). We find that Appellants have provided sufficient evidence to show that the product resulting from the claimed process is distinct from the product of Mansikkamäki. For example, Appellants rely on Sarko et al.,¹ to show that in step (a), as claimed, a conversion from cellulose I to cellulose II takes place, with cellulose II having a distinct crystal structure from that of cellulose I. Sarko states that, “[r]emoving the NaOH from the structure through washing with water removes the energy-lowering electrostatic field. This results in a conversion of the structure to the only energy-lowering one that is available to it – a twofold helical, interchain hydrogen-bonded sheet structure.” (Sarko, p. 176; App. Br. 5-6.) In addition, according to Appellants, Tables 1-4 of the Brief, derived from Examples 1-5, 7, 9, and 10 of the present Specification, show that CMC made by the claimed process has an increased viscosity as compared to CMC made from a control prepared by treating the

¹ Crystalline Alkali-Cellulose Complexes as Intermediates During Mercerization, *The Structures of Cellulose*, ACS Symposium Series, Vol. 340, American Chemical Society, Washington DC (1987), pp. 169-177.

native cellulose (cellulose I) which was not mercerized and recovered before being alkalated and etherified. (Br. 8-10.)

Therefore we disagree with the Examiner and find that the Appellants have established with sufficient evidence that a product made by the claimed process is different from the product disclosed in Mansikkamäki. The anticipation rejection is reversed.

SUMMARY

The anticipation rejection is reversed.

REVERSED

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